Paper presented in the IV Globelics Conference at Mexico City, September 22-24 2008

Globelics

Indigenous claims to native crops and plant genebanks: a case study from Peru

Camila Carneiro Dias[a]
Maria Conceição da Costa[b]

1. INTRODUCTION

The idea of benefit-sharing has, over the past fifteen years, taken hold in several prominent arenas of research and development, from pharmaceutical, oil, and mineral prospecting to human genetic research. Broadly, the idea refers to a commitment to channel some kind of returns - whether monetary or non-monetary - back to a range of designated participants: "affected" parties, source communities or source nations, participants in clinical trials, patient groups etc. Derived from stakeholder theory and post-neoliberal attempts to frame market-based activity into presumed social and environmental ends (Hayden, 2003, 2007), benefit-sharing is often framed simultaneously as: a matter of justice, as a proxy for property rights, and as a "non-market" tool for redistributing value production.

The politics, ethics, and practice of benefit-sharing have been elaborated most thoroughly, though not exclusively, in the realm of biological resources. Here, the promise of equitable returns to source communities and source nations was institutionalized as a multilateral principle for the sustainable management of biodiversity in the 1992 UN Convention on Biological Diversity (CBD). In this arena, and increasingly in others[1], a broad commitment to benefit-sharing is installed through a number of mechanisms: licensing agreements and royalty-sharing contracts; academic research protocols; ethical guidelines for corporation's "good-practices"; multilateral mandates; government regulation and legislation.

In 1992, in the face of considerable opposition from Northern interests, the Convention on Biological Diversity (CBD) came into force and recognized states' sovereign rights over their natural and biological resources. Although the convention was apparently beneficial and championed by many southern activists, environmentalists and scholars, Dorsey (2000) argues that christening plants as property underneath jurisdiction of the state was a "mixed blessing": member nations were formally given what was arguably already theirs and simultaneously obligated to erect sufficient regulatory infrastructure to protect these resources from expropriation.

[a] Department of Science Policy and Innovation, State University of Campinas – UNICAMP, São Paulo, Brazil, camilac@ige.unicamp.br or camilacarneiro.dias@gmail.com
[b] Department of Science Policy and Innovation State University of Campinas - UNICAMP, São Paulo, Brazil, dacosta@ige.unicamp.br

1 Besides the international commercialization of agrobiodiversity and/or indigenous knowledge other domains have been being affected by the language of benefit-sharing. Since the late 1990s, bioethicists and policy-makers working on guidelines for clinical research (clinical trials, research on human genetic disease, the management of blood and tissue banks) have become familiar to this language as well. As Hayden says (2003, p.04): *"Here the task has been to grapple with the ethics and politics of an increasingly commercialized clinical research: in view of the enormous fortunes on the speculative horizon that may be derived from human biologicals, legal scholars and ethicists are making a case that pharmaceutical companies may well have an obligation to distribute some slice of their profits to relevant/appropriate 'beneficiaries' or 'stakeholders'."*

In 2001, almost ten years after the publication of CBD, the International Treaty on Plant Genetic Resources for Food and Agriculture (FAO International Treaty) was adopted by the FAO[2], highlighting very similar principles regarding the protection of farmer's rights. The FAO International Treaty recognises past, present and future contributions of farmers in all regions of the world in conserving, improving and making available plant genetic resources for food and agriculture.

Like the CBD, the FAO International Treaty does not define the concept, but states explicitly that the responsibility for implementing its provision on farmers'rights rests with national governments. Governments are free to choose the measures they consider appropriate, according to their needs and priorities, as long as specific attention is given to the protection of traditional knowledge, fair and equitable distribution of benefits derived from the use of plant genetic resources and participation in decision-making processes (Muller, 2006).

Fifteen years of CBD-sanctioned experiments have made evident the many difficulties that the principle of benefit-sharing is likely to confront. In this domain, matters of sovereignty mix with the delicate questions not just of "how much" should be shared, but with whom, and on what basis. In fact, a number of inter-related problems and questions arise provocatively alongside the ascendant politics of benefit-sharing: what kind of entitlement is benefit-sharing and what a benefit is (technology transfer, royalty payments, infrastructure building, community development projects)? Who counts as a benefit-recipient (national biodiversity institutes, some communities and not others, developing country scientists)? What principles and mechanisms - ethics, legal rights, trade, contract - shall guarantee such redistributions and render it in practice? These are not simple questions but conceptual matters that suggest significant gaps at the interface of conventional frameworks of community, nation, market, and rights.

According to Hayden (2003), one way to look for an answer to the question of what benefit-sharing is, is to think about what it is not. In this vein, she traces the relation between intellectual property rights (IPR) and benefit-sharing. For her, although the relationship between the politics of benefit-sharing and intellectual property is complex and under constant re-negotiation, where biologicals resources are concerned, benefit-sharing relies on the concept of IPR but is not at all isomorphic to it. She reminds that, intellectual property itself (as patents for example) is rarely, if ever, considered part of the package of goods to be redistributed to benefit-recipients. Benefits are, in other words, posed mainly as compensation tools, but not as rights.

Similarly, for De Jonge and Korthals (2006), the present benefit-sharing application as an instrument for compensation or exchange is quite narrow and has very little to do with the concepts of distributive justice or community participation. It means that most existing mechanisms of benefit-sharing are downstream focused (at the end of the research and development pipeline) and the idea of shared decision-making regarding the technological utilization of the resources is, most of the times, not part of the deal.

In Peru, a series of recent laws and regulations address the protection of traditional knowledge related to biological resources. The right to participate in the fair and equitable sharing of benefits derived from access to and use of plant genetic resources has been recognized in a series of laws and regulations. Most importantly, Law 27811 for the Protection of Collective Knowledge of Indigenous People, published in 2002, is a milestone in this regard. Specific projects which involve accessing and using farmers' seeds and genetic resources and their related traditional knowledge have also incorporated benefit sharing conditions and commitments.

2 Food and Agriculture Organization of the United Nations.

For all these reasons, it is certainly worthwhile to question how feasible and effective is the paradigm of "benefit-sharing" in promoting biodiversity conservation, indigenous rights recognition and community development. In other words, to investigate what does this entitlement really mean for countries, corporations and holders of biological resources and traditional knowledge worldwide: a fundamentally new way of introducing equity into the market place or just business as usual with a politically correct face (Peterson, 2001)?

Through the lens of a recent benefit-sharing agreement that took place in Peru, some distinct but related questions are asked, in an attempt to enhance understanding of these complex issues. First: did this agreement actually secured fair and equitable benefits for holders of traditional knowledge, and if not, which aspects require further attention? Second, what could we possibly learn from the negotiating process to develop a benefit-sharing agreement that can usefully be applied in similar situations?

The analyzed cases is the rapatriation agreement of a native potato germplasm bank negotiated in 2004 between the International Potato Center (CIP), which comes to be a member of the alliance of the 15 centers of the Consultative Group on International Agricultural Research (CGIAR), and the Quechuas Communities of the Potato Park, represented by an indigenous NGO, ANDES.

Information for the case study came from both secondary and primary sources. Primary data was gathered during field research in Peru, in June, 2007. The methodological approach was mostly qualitative and included guieded visits to the International Potato Center in Lima and to the communities of the Potato Park, near Cusco, as well as in-depth interviews with key-actors from both organizations. Besides, a group of actors closely related to the general scope of benefit-sharing regulation and traditional knowledge protection in Peru was also interviewed. These included policy-makers, scholars, NGO attorneys and private sector representatives[3].

This paper is structured as follows: this introduction has presented the research goal and its methodological choices. Next section presents a general view of the current regulatory framework for indigenous knowledge protection and benefit-sharing related to biological resources in the international level and in Peru. Section 3 presents the case-study – the repatriation agreement between CIP and the Quechua communities from the Potato Park and discusses its main implications. Finally, last section presents some concluding remarks about the case-study.

2. REGULATING INDIGENOUS KNOWLEDGE PROTECTION IN PERU: AN OVERVIEW

Traditional and/or indigenous knowledge (from now on identified as TK) has been used for centuries by indigenous and local communities under local laws, customs and traditions. It has been transmitted and evolved from generation to generation. TK has played, and still plays, an important role in vital areas such as food security, the development of agriculture and medical treatment. However, Western societies have not, in general, recognised any significant value in TK nor any

3 Twenty-two actors were interviwed during field research. These included: five researchers from the Intenational Potato Center (CIP) staff; two indigenous representatives from ANDES and The Potato Park Communities; two representatives from different Peruvian Amazonian Indigenous Federations (one from CONAP – *Confederación de Nacionalidades Amazónicas del Perú* and another from AIDESEP - *Asociación Interétnica de Desarrollo de la Selva Peruana)*; two IPR analists from INDECOPI, the Peruvian Patent Office; two scholars from *Universidad Agraria La Molina* (UNALM); four members of the National Comission for the Prevention of Biopiracy; one lawyer from SPDA - *Sociedad Peruana de Derecho Ambiental*, an environmental NGO; one anthropologist from GRADE - *Grupo de Analisis para el Desarollo,* a private non-profitable research organization; one researcher from INIA - *Instituto Nacional de Investigación Agraria,* a governmental agricultural research institute; the chief-executive-oficcer of *Laboratorios Hersil S.A.,* a private Peruvian pharmaceutical company and; the former Peruvian project coordinator of Shaman Pharmaceuticals, a (now closed) North-American private pharmaceutical company .

obligations associated to its use, and have passively consented to or accelerated its loss through the destruction of the communities' living environment and cultural values.

Recently, Western science has become more interested in TK and realised that TK may help to find useful solutions to current problems, sometimes in combination with "modern" scientific and technological knowledge. Despite the growing recognition of TK as a valuable source of knowledge, it has generally been regarded under Western intellectual property laws as information in the "public domain", freely available for use by anybody. Moreover, in some cases, diverse forms of TK have been appropriated under intellectual property rights by researchers and commercial enterprises, without any compensation to the knowledge's creators or possessors.

TK is a central component for the daily life of millions of people in developing countries. Traditional Medicine (TM) serves the health needs of a vast majority of people in these countries, where access to health care services and "modern" medicine is limited by economic and cultural reasons. Traditional medicine is also significant in more advanced developing countries such as South Korea, where the *per capita* consumption of TM products is about 36% higher than the consumption of modern drugs (Correa, 2006). Even in developed countries, where the demand for herbal medicines has grown in recent years, traditional medicine also plays a significant role

The knowledge of traditional and indigenous farmers relating to cultivated plants has also been a central element for the development of new plant varieties and, most importantly, for food security on a global scale. The use and continuous improvement of farmers' varieties is essential in many agricultural systems. In many countries, seed supply fundamentally relies on the "informal" system of seed production which operates on the basis of the diffusion of the best seed available within a community. Furthermore, TK is the origin of a great variety of artistic expressions, including musical works and handcrafts.

Since the advent of benefit-sharing as a multilateral principle in international treatys, intellectual property and the protection of traditional knowledge have become central topics to wider indigenous movements for self-determination and rights mobilizations (Coombe, 2001, 2003). Even the World Intellectual Property Organization (WIPO), a group that has the defense of the intelectual property as its ultimate mandate, has become an interesting forum for indigenous mobilization on these fronts. According to Coombe, the WIPO special working group on 8j[4] has become a site of unprecedented indigenous mobilization to broader United Nations discussions on intellectual property and trade. WIPO has also engaged in sending missions around the world to ascertain how the intellectual property system could be used, expanded or altered, to better protect traditional or indigenous knowledge.

Besides WIPO, the CBD and its Ad Hoc Open Ended Working Group on Article 8(j) or the FAO International Treaty, the UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage, also has invested time, resources and efforts to generate policy and legal processes towards the protection of traditional knowledge.

In spite of the ongoing process of capacity building at the international level, there is not yet an exact definition for "traditional knowledge". In fact, traditional knowledge, given its vast scope and vague boundaries, is a somewhat elusive concept, and the different nature and forms of expression of the information embraced by TK, can make it difficult to agree on a legally and scientifically acceptable definition. WIPO, for example, has refused to seek a final and complete definition of TK, and preferred to adopt the practical approach of finding an operational definition based on the

4 World Intellectual Property Organization Intergovernmental Committee on Intellectual Property and Genetic Resources Traditional Knowledge and Folklore, WIPO-IGC.

several statutory characteristics that TK must present in order to be eligible for legal protection[5], whereas the CBD, on article 8(j) refers to "knowledge, innovations and practices of indigenous and local communities" of particular relevance for the conservation and sustainable use of biodiversity in general.

Some argue for the need to broaden the scope of traditional knowledge concept to all the creative manifestations of indigenous communities, including expressions such as dance, writings, paintings, artefacts, textiles, designs and folklore in general (De la Cruz et al., 2005). Others, such as Sousa Santos et al. (2004), even criticize the use of the adjectives "traditional" or "local" arguing that they express a misconceived attribute of "static", "exotic" or "old-fashioned" knowledge, whereas the knowledge systems of these communities can be quite dynamic and not necessarily circumscribed to local issues.

The difficulty in defining TK should not be, however, an obstacle to elaborate the conditions for the protection of such knowledge. But although the CBD creates the obligation to respect, preserve and maintain traditional knowledge and to promote its wider use, with the approval of indigenous and local communities, it does not describe how this is to be achieved at the national level.

At the regional level, member countries of the Adean Community (CAN)[6] were among the first to recognize the value of their biological and genetic resources and to adopt measures to protect them, with instruments such as a regional ABS regime, a Regional Biodiversity Strategy and a the adoption of Decisions 391 and 486 which establish a regional intellectual property rights (IPR) regime requiring disclosure of the right to use genetic resources and knowledge of the region as a requirement for the granting of any IPR.

The process was initiated in 1994, and in 1996, Decision 391 on a Common Regime on Access to Genetic Resources was approved, making specific references to traditional knowledge. In this regard, Member States "*recognize and value the rights and the authority of indigenous, afro-americans and local communities to decide about their knowledge, innovations and traditional practices associated to genetic resources and their derived products"* (article 7). Furthermore, the Second Complementary Disposition of Decision 391 establishes that Member States "*... shall not recognize rights, including intellectual property rights, over genetic resources, derived or synthesized products and associated intangible components [traditional knowledge] that were obtained or developed through an access activity that does not comply with the provisions of this Decision. Furthermore, the Member Country affected may request nullification and bring such actions as are appropriate in countries that have conferred rights*".

This provision actually originated as a proposal by Peru and was promoted first at the national level and then internationally. Basically, it sets out that intellectual property authorities demand, prior to granting intellectual property rights (mainly patents), that applicants demonstrate the geographical and legal origin of genetic resources and traditional knowledge which may be part of an invention. This type of approach seeks to prevent the granting of "bad" intellectual property rights and prevent biopiracy (Correa, 2005; Comisión Nacional contra la Biopiratería, 2005; Ferro & Muller , 2005).

In Peru, efforts to build a regulatory framework for the protection of traditional knowledge can be traced back to the early 1990s. Of particular importance in this trajectory is the publication of the Law for the Protection of Access to Peruvian Biodiversity (Law 28216, 2004) and of the Law for

---

5 See *Elements of a Sui Generis System for the Protection of Traditional Knowledge,* documents WIPO/GRTKF/IC/3/8, of March 29, 2002, at paragraphs 10-17, and WIPO/GRTKF/IC/4/8, of September 30, 2002, at paragraphs 24-33. But see *Traditional Knowledge—Operational Terms and Definitions,* WIPO document WIPO/GRTKF/IC/3/9, of May 20, 2002, which provides for a lengthy discussion on a possible definition of TK.

6 Bolivia, Equador, Peru, and Colombia. Venezuela was a member until 2006.

the Protection of Collective Knowledge of Indigenous People (Law 27811, 2002). The first includes specific references to *in situ* conservation of biodiversity and the need to protect traditional knowledge of *campesino* and native communities, ensuring their participation in the benefits generated from its utilization, while the second is considered the first comprehensive national *sui generis* regime for the protection of rights over traditional knowledge.

During the mid-1990s the country witnessed the negotiation of a controversial biodiversity prospecting agreement, involving federations representing Aguaruna communities of the northern Peruvian Amazon, and Searle & Co., the pharmaceutical arm of the Monsanto corporation, at that time. This contract negotiation, arising within the framework of the International Cooperative Biodiversity Group (ICBG) Programme, demonstrated the need for adoption of legal measures to (i) recognize and protect rights of indigenous peoples over their traditional knowledge; (ii) provide means for resolution of conflicts between indigenous peoples or communities where customary law and practice does not apply; and (iii) define rights of indigenous peoples over traditional knowledge in the public domain (Greene, 2004; Tobin, 2002).

In the search for a contractual mechanism to protect rights over traditional knowledge, and genetic resources provided to Searle & Co., it was decided to adopt a form of know-how licensing arrangement. The licence was designed to (a) secure continuing control by indigenous peoples of their knowledge throughout research and development (R&D) of new medicinal products; (b) increase opportunities for benefit-sharing; (c) prevent patents obtained during R&D from being used to impede the use, sharing, transfer, licensing or sale of traditional knowledge or traditional medicinal products, anywhere in the world; and (c) extend control to genetic resources that are the subject of the R&D activities.

The licensing proposal was initially rejected by Searle's lawyers on the grounds that it would require approval of Monsanto's CEO, as it amounted to a significant change of the corporation's business practices. The Aguarunas stood firm, convinced that this contractual format provided the most appropriate means to defend their rights, thereby setting an important precedent. However, the lack of a supportive legislative framework and the unequal bargaining power of the parties led to dilution of some of the most progressive elements of the initial licensing proposal, demonstrating the need to establish legislation which recognizes and regulates the rights of indigenous peoples with regard to the negotiation of agreements for use of their knowledge (Tobin & Swiderska, 2001).

To this end INDECOPI (Instituto Nacional de Defensa de la Competencia y de la Protección de la Propiedad Intelectual), the competent national authority for the promotion and protection of intellectual property in general, established a working group, in early 1996, to prepare a legislative proposal. According to a former member of the group, Manuel Ruiz, a lawyer from The Peruvian Society for Environmental Law (SPDA, in its Spanish acronym), the draft proposal for protection of indigenous collective knowledge was strongly infuenced by the ICBG experience whose agreements were used as a practical model from which key issues and problems could be conceptually analysed.

On 21 October 1999, following a four-year drafting process, a proposed regime for the protection of the collective knowledge of indigenous and local communities was published in the official Peruvian press, with a call for comments by the population at large. On 31 August 2000, the revised version of the proposal was published. In preparing this modified version INDECOPI took into account over 30 written submissions regarding the earlier proposal. It is worth noting that only two submissions were made by indigenous people. In fact, in a workshop organized in the week following publication, indigenous peoples drew attention to the limits of the process for securing indigenous participation.

By the end of 2000, INDECOPI paused temporarily the project in order to consider how to develop a more extensive process of participation. However, after two years of break off and incremental adjustments, the agency claimed lack of funding to be the main impediment to the development of a broad consultation process and the present version of Law 27811 was finally published in August 8th, 2002. Whatever the reasons, despite the long period of gestation, the process apparently failed to effectively engage indigenous people. And although the initiative to develop legislation to protect rights over traditional knowledge has been welcomed in principle by indigenous peoples and those working closely with them, the content of the proposal and the process for its development have been the subject of substantial criticism, since its publication.

According to its critics (Correa, 2005; Tobin, 2002), the Peruvian experience in developing a *sui generis* regime highlights the dangers of a "technically driven" drafting process, attempting to define the objectives, scope and modalities for protection without first securing the commitment of indigenous peoples to the process. In addition, if adopted as currently published, the proposed Peruvian regime could, in fact, prove to be counterproductive and promote division among indigenous people .

But although the process may be questioned, it has helped to identify many of the complex issues and conflicts that need to be overcome in order to develop a strong *sui generis* regime to protect traditional knowledge. And even its most hard critics agree that the existing weaknesses in the proposal are not totally insurmountable, subject to firm political will committed to review the existing law and to establish informed and local participatory processes, securing indigenous peoples and local community participation in debate on mechanisms for protection of traditional knowledge.

The ICBG bioprospection project with the Aguarunas was surely a major influence in the Peruvian process of building institutional capacity for the protection of traditional knowledge, but it was not the only one. Two of the most controversial cases are related to patents granted outside Peru for products derived from two well-known native plants, the Maca and the Ayahuasca.

Also known as Peruvian ginseng or "Viagra Natural", the Maca plant is believed to deliver a "jolt of energy" to the male loins, increasing sperm count and enhancing the libido. The earliest Andean civilizations discovered that altitude diminished the sex drive of livestock, and that a nibble of maca could revive an alpaca's urge to procreate. Although maca is a native tuber from the Andean highlands, maca pills and powders have been available in American health food stores for over a decade. The main ingredient in several of these products is *MacaPure*, a trademarked manufactured by Pure World Botanicals of South Hackensack, New Jersey.

In 2001, Pure World was awarded United States patent number 6,267,995 for its method of using an alcoholic solvent to isolate maca's active compounds (Koerner, 2005). The Peruvians were outraged and condemned Pure World's actions as biopiracy. Peru believes that it deserves an equitable portion of MacaPure's sales, in recognition of the intellectual contributions of the Quechua, since their ancestors were the first to discover the plant's properties, having spent centuries perfecting the complicated methods necessary to raise and prepare the crop. The coalizion against the maca's US patents resulted in the creation of the National Maca Working Group, in 2002, that would later become the core group for the institutionalization of the Peruvian Comission for the Prevention of Biopriracy.

Ayahuasca, by its turn, is a sort of hallucinogenic vine familiar to residents of the Amazonian rainforest for generations. The vine was patented in the U.S. in 1986. The U.S. Patent and Trademark Office (PTO) annulled the patent in 1999 in response to a protest from a coalition of Amazonian NGOs, ruling that publications about the vine were known and available at the time the

patent application was filed. But the patent was reinstated when the PTO concluded that the size and shape of the vine's leaves were, in fact, different from those previously described; the patent stood until its expiration in 2003.

Pure World's maca patent is more nuanced than the one that covered ayahuasca, because it was not awarded for the plant itself, but rather for a method of extracting maca's essence. Peruvians officials see nothing innovative in Pure World's patent, however. They argue that the patented extraction method is just a fancy version of a Quechua trick: soaking the dried root in *aguardiente*. The resulting shake, which is typically sweetened with a blend of fruit and milk, is a popular beverage on the streets of Junín, a town in the heart of Peru's maca-growing region. The drink's alcoholic component releases the maca root's essences, much in the same manner as Pure World's solvent technique. The only real difference, the Peruvians claim, is that Pure World's scientists use expensive laboratory equipment instead of cheap blenders.

Peruvian government is short on funds, but it intends to overturn the maca patent proving that Pure World's techniques does not substantively improve on the Quechua method that has been used for centuries. But the extraction technique behind the Junín beverage has probably not been formally recorded since the recipe was mostly orally transmitted, for generations. As Title 35 of the U.S. Code has been interpreted by the U.S. Supreme Court, oral testimony alone is not sufficient to prove the existence of what lawyers call *prior art* - pre-existing knowledge that may invalidate a patent. In the ayahuasca case, for example, a Peruvian Shaman testified that the patented vine had long been used in religious rites, but the patent examiners refused to consider his statement.

Still, INDECOPI and the members of the Peruvian Comission for the Prevention of Biopiracy believe that written prior art may exist somewhere, perhaps in the archives of a rural university. It has enlisted the probono aid of Jorge Goldstein, an Argentinean-born partner, in the Washington, D.C., law firm of Sterne Kessler Goldstein & Fox, to find such evidence. He has been sifting through Spanish-language documents that might describe the alcohol-and-maca technique.

The more substantive of Peru's objections to the maca patent is that Pure World did not obtain official permission before launching its research, nor did it agree to share revenues with either the Quechuas or the government. Neglecting to do both violates the Convention on Biological Diversity. In July, Pure World was sold to the French nutriceuticals company Naturex. Before that, in a 2004 interview with *The Bergen County Record*, Pure World's then-president, Qun Yi Zheng, stated: “We really enhanced the equity of maca itself...we shouldn't be blamed, we should be thanked” (Koerner, op.cit).

Previously mentioned Manuel Ruiz, director of the program on international affairs and biodiversity for SPDA, and also a member of the Peruvian Comission for the Prevention of Biopiracy, believes that Pure World should split the profits from maca with his country: “We have the resource, and we have the related knowledge, and we have conserved the resource over the centuries... Americans have the technology to add value and commercialize the resource through their distribution channels. I think half-and-half is a very simple way to envision a fair sharing of benefits.”[7]

Despite the many gaps still to be overcome, the implementation of measures for the protection of TK is an ongoing process in Peru, mostly driven by INDECOPI. In the past years, these activities have included:

a) INDECOPI and SPDA have elaborated an Explanatory Manual of Law 27811 for the Protection of Collective Knowledge of Indigenous People, especially oriented towards indigenous

7 Interview with Manuel Ruiz Muller, Lima, June 18th 2007.

communities leaders. With the support of the indigenous organization National Confederation of Amazonian Nationalities (CONAP), this manual has been translated and published in two indigenous languages: Yanesha and Shipibo. Recently, two more versions were prepared in the Ashaninka and Quechua languages. A more brief explanatory text of Law 27811 (for a quicker understanding of its basic objectives) has also been published. This initiatives were sponsored by international donors such as the International Plant Genetic Resources Institute (IPGRI)[8], the Canadian International Development Research Centre (IDRC), The German Federal Ministry for Economic Cooperation and Development (BMZ) and the MacArthur Foundation. These manuals and documents are also part of an international project called "Rescue, Defense and Protection of Traditional Knowledge of Indigenous Communities of the Amazon" which is supported by the United Nations Development Programme Global Environmental Facility (UNDP-GEF);

b) In order to consolidate dissemination and awareness-raising efforts regarding traditional knowledge protection, INDECOPI launched a traditional knowledge website[9] providing information on documents regarding TK issues, national, regional and international events and meetings, relevant legislation and other links of interest. It will also includes a link to the National Public Register for Traditional Knowledge, which was created on Law 27811. This Register was planned to incorporate all traditional knowledge in the public domain and serve to inform intellectual property offices on existing prior art related to traditional knowledge. Access and use protocols are currently being developed jointly by the SPDA, INDECOPI and CONAP, to ensure appropriate and informed access to data and information in this Register. This initiative is supported by the Andean Amazon Biopiracy Prevention Initiative which is sponsored by IDRC and by the UNDP-GEF program;

c) The National Commission for the Prevention of Biopiracy, was established by Law 28216, in the year of 2004. The Commission was created to prevent and address biopiracy related to genetic resources of Peruvian origin and of traditional knowledge of its indigenous communities. It is composed of institutions of the public and private sector and has met regularly since late 2004. The Commission has also continued to work on activities initiated by the National Maca Working Group and has started to analyze new cases of biopiracy (patents with questionable novelty and inventiveness) related to camu-camu (*Myrciaria dubia*), another native domesticated plant. A report on camu-camu was presented to the Council of the Trade Related Aspects of Intellectual Property (TRIPS) in October 2005. The Commission started its activities with support of the Andean Amazon Biopiracy Prevention Initiative (a project funded by the Canadian IDRC) and now has complementary public funds provided by INDECOPI to continue its work and activities;

d) In June 2004, the Peruvian Congress and SPDA organized a Forum with the title "How to Prevent Biopiracy in Peru?". As a result, a book was published, the first publication of its type in the country. In November 2005, INDECOPI and the National Commission for the Prevention of Biopiracy organized a seminar on new challenges for Peru regarding the issue of biopiracy. This served to disseminate advances in the work of the Commission and make the public in general more aware of the problems that biopiracy generate.

Beyond the national level, Peru has maintained a coherent position in different international fora (mainly the WTO-TRIPS, CBD and WIPO-IGC) in relation to the protection of traditional knowledge. It has been especially active in promoting the so called "defensive protection" of traditional knowledge through disclosure of origin mechanisms as part of the procedures for granting intellectual property rights. Peru has presented different documents at these fora; one of the

8 The IPGRI is part of the CGIAR (Consultative Group on International Agriculture Research), an international alliance of fifteen agricultural research centers located in developing countries and headquarted in the USA. The origins, nature and composition of the CGIAR alliance is further explained in pages 10 and 11 .

9 http://www.indecopi.gob.pe/portalctpi/

most significatives, Document IP/C/W/447, was distributed during a meeting of the TRIPS Council (June, 2005) and was titled “Disclosure of Geographical Origin”. But the idea of linking access to genetic resources with the intellectual property regime was in fact firstly proposed by Peru in 1994 during the development and negotiation of Decision 391 of the Andean Community. Various countries (among these India, Brazil and other Members of the Group of Like Minded Mega-Diverse Countries) have contributed towards reinforcing and making this proposal more visible and disseminated.

Protection of traditional knowledge is a very complicated policy, legal and technical matter. In Peru, it has proved to be a complex challenge to balance the legitimate demand by *campesinos* and indigenous communities of having their intellectual efforts for the conservation and development of genetic resources over centuries recognised and compensated without compromising the necessary flows and exchanges of knowledge within and among communities and with researchers.

According to Muller (2006), allthough in perspective, ten or fifteen years back, legal and policy (and even economic) considerations surrounding traditional knowledge were quite distant to communities, there has been a gradual process of information sharing, participation in workshops and awareness raisingthat have permeated communities and which at present allows them to promote their own interests and agendas regarding the protection of their knowledge. Participation in decision-making processes has also progressed through the involvement of *campesinos* and smallscale farmers (represented through their organizations) in the drafting of and consultations on specific acts of legislation.

Yet, the initial reaction by communities in certain areas of Peru, and in the Amazon region in particular (Muller, 2005), has been to question the motives of research and even impede collecting of specimens and research activities on their lands and territories. There seems to be a general feeling that benefits derived from the use of biodiversity components and traditional knowledge collected and obtained from these communities have not been adequately shared and distributed. In a certain way, communities feel “cheated” and therefore demand a new approach for research on their lands based on prior informed consent, mutually agreed terms and the fair and equitable sharing of benefits.

Since the CBD entered into force and even since the FAO International Treaty publication, there has been a trend to make monetary and non monetary benefit sharing mechanisms much more explicit in projects and activities which involve access to and use of genetic resources and traditional knowledge in Peru. Over the past few years, different agreements with regard to access and use of biodiversity components have been negotiated including general or specific provisions regarding the sharing of benefits with communities. Whether these benefits are actually “fair and equitable” is at present an important element in national and international debates on this issue. At present, general impression is that there are two types of benefit sharing projects in Peru:

- One type is aimed at the commercial utilization of genetic resources, where agreements are entered into between providers and receivers of genetic resources and traditional knowledge which include provisions on benefit-sharing and where the providers receive monetary benefits and other benefits;

- The ultimate aim of the second type of project is benefit sharing (not only in direct financial terms) as an instrument to ensure benefits for farmers and farming communities in Peru. Here, actors are supposed to cooperate for the purpose of conservation and/or participatory plant breeding in the benefit of people established in the project areas.

Generally, the first category of project is often related to the prospection of pharmaceutical products

(like the previously mentioned ICBG project[10]), whereas the last category is related to the local conservation of plant genetic resources for food and agriculture. In the following session, we will take a closer look on an example of this second category: a project focused on the conservation *in situ* and sustainable use of a native crop (Andean potatoes), where concerns about the legitimate "ownership" of traditional knowledge have been strongly voiced .

3. BENEFIT-SHARING RELATED TO BIODIVERSITY IN PERU: CONSERVATION *IN SITU* AT THE POTATO PARK

Peru is home to 182 species of native domesticated plants. Of these, 85 are of Amazonian origin (e.g *Annona muricata, Fittonia albivenis, Carica papaya, Bixa orellana, Bertholletia excelsa,* among others), 81 of Andean origin (e.g *Smallanthus sonchifolius, Tagetes minuta, Chinchilla laniger, Lepidium meyenii, Chenipodium quinoa, etc.*) and the remaining 8 are from the coastal area (e.g *Erythroxylon coca, Cucurbita cicifolia*, etc.). These species include fruits, spices, medicinal plants, woody plants, oil palms, etc. which are used widely and especially by indigenous and local communities (and society at large) for multiple purposes (Brack, 2005). Peru is also a center of domestication of at least 6 animal species, including *Lama guanicoe f. glama* (llama), *Lama vicugna f. pacos* (alpaca), *Cavia tschudi* (cuy), *Cairina moschata* (creole duck), and *Dactylopius cocus* (cochinilla), which have been used for centuries by farmers, especially in the Andes.

Recent research has also demonstrated that Peruvian Andes is the main centre of origin and diversity of potatoes in the world (Heywood et al., 2007). The country is home to 9 species of domesticated potatoes and of hundreds of "wild" native varieties. One of the domesticated species, the white potato, (*Solanum tuberosum*) is cultivated extensively world-wide and is one of the five most important food crops in the world, alongside with rice, wheat, maize and barley.

The population of Peru is nearly 30 million people, and 35% of them live in rural areas. Approximately 4.5 million rural inhabitants live in poverty, and, of these, 2.5 million live in extreme poverty. It has been estimated that 64% of the rural homes depend on agriculture for their livelihoods. Over 30% of the farmers have no formal education at all. About 60% have primary education, whereas 4% have secondary education (Muller, 2006). Only between 2.7% and 5.9% of total land in Peru is suitable for agriculture. Of this land, until 2003, only 30% had some kind of operational irrigation system. More than 70% of agrarian units had an area of less than 5 hectares (the average size is 3.1 hectares) and covered less than 6% of the total agricultural land. In addition, more than 75% of the agriculture in Peru uses manual tools and animals (plows, mules).

Approximately 10% of the agriculture land is oriented towards production on export and industrial crops (asparagus, mangoes, avocado, coffee, cacao, among others). These complexes are mostly concentrated at the Peruvian Coast. On the other hand, about 31% of the land is dedicated to national markets (onions, rice, yellow maize, bananas, corn, alfalfa, manioc), whereas between 15% and 20% of the land is dedicated to subsistence farming (barley, oca, olluco, wheat, potatoes). This is mostly varied extensions of lands of small *campesino* and native communities

For Andean *campesino* communities, farming/agriculture is a central activity. These are really small farming communities which combine agricultural practices with livestock activities. In the Andean region of Peru, only between 15% and 23% of agricultural production enters the market. The remaining percentage is used for self consumption, exchange and local use mainly. A poll taken among Andean communities indicated that: 20% of production is consumed; 30% is used directly as

10 There is already a significant literature about bioprospection projects in Peru, most of it related to the ICBG case. To know more about this project, see Greene (2004) and Muller (2005).

seeds; 30% of seeds are processed; 5% are used as a barter tool; 5% as gifts and 10% is sold (Muller 2006, op.cit.).

These small *campesino* and native farming communities are considered the main conservators of genetic biodiversity, native crops and their wild relatives in Peru. The Implementing Rules and Regulations for the previously mentioned Law 27839 on the conservation and sustainable use of biodiversity and the National Biodiversity Strategy have recognized "agrobiodiversity zones" as a special mechanism for the conservation and sustainable use of native crops and their wild relatives and for the preservation of traditional indigenous cultures related to these crops as a means to provide alternative development and benefit-sharing options for indigenous and local communities. These agrobiodiversity zones are not part of the Peruvian National System of Natural Protected Areas (SINANPE)[11].

Agrobiodiversity zones were created to identify geographical areas where genetic diversity of native crops and culture, including knowledge, innovations and practices of indigenous communities, interact. These areas are subject to a special legal status and incentives which ensure that indigenous communities conserve their culture, maintain, and develop native genetic diversity. One example of these zones is the Potato Park (*El Parque de la Papa*) located in the Valley of Pisac, near Cusco, where six Quechua villages came together to manage their communal land and sustain their traditional ways of farming based on the principle of integrated landscape conservation.

In 2000, the Andean communities of Sacaca, Paru Paru, Amaru, Cuyo Grande, Chawaytiri and Pampallacta, joined efforts to create and develop this special area for the conservation of agrobiodiversity, with the technical support and guidance of the Quechua Aymara Association for Sustainable Livelihoods, a Cusco-based indigenous NGO (known by the acronym ANDES), founded in 1996 by Alejandro Argumedo, a Quechuan agronomist (with a degree from McGill University) with a large experience in international indigenous/environmental activism, including serving as vice-chair of Indigenous Affairs for The World Conservation Union (IUCN)[12] and being the Coordinator of the Indigenous Knowledge Programme and former Executive Director of the NGO Cultural Survival, in Canada[13].

Currently, ANDES has a six professional staff (two directors, two administrators, a field coordinator, and a computer technician) in their office in Cusco, while another fifteen university-trained and twenty-five local villagers technicians are in the field. The staff sometimes includes volunteers working in administrative tasks or in individual research, conservation and development projects. Executive Committee members are Alejandro Argumedo himself (Associate Director); the Canadian environmental educator and also Argumedo's wife, Tammy Tenner, who responds for the Food Sovereignty and Health Projects Coordinations and, Cesar Medina, Executive Director. The Advisory Committee members include international researchers (Alexander Nadal, from the Colegio de Mexico; Arpad Putzai, an independent Hungarian researcher based in England and; Joan Martinez Alier, from the Universitat Autonoma de Barcelona), well-known indigenous grassroots activists (Vandana Shiva, from The Research Foundation for Science, Technology and Ecology - India) and environmental "watchdogs" NGOs leaders (Pat Mooney, from the Erosion, Technology and Concentration Action Group - ETC group, Canada).

---

11 An assessment is currently being carried out to determine whether these areas should be regulated as an independent category at the national, regional or local level. Some are proposing that these areas could be created as private conservation areas (under community domain and administration) whereby they could become parts of the System.

12 IUCN is considered the largest network of conservation organizations (83 States, 110 government agencies and more than 800 non-governmental organizations, including ANDES). It is headquarted in Switzerland.

13 Under his leadership, Cultural Survival Canada separated from its parental body and set up an all indigenous international Board of Directors.

The Potato Park project was laregely inspired on an integrated landscape conservation model following the "Management Guidelines for Category V Protected Areas", a set of principles developped by IUCN. In very general terms, the focus of this conservation approach is "on large-scale bioregional landscapes with interwoven natural and cultural resource values held by associated cultural groups who have interacted with the place over time" (Phillips, 2002). The Potato Park is also part of the "Condor Route/Wiracocha", a network of *in situ* protected Andean agrobiodiversity sites planned to extend from southern Venezuela to Chile, that proposes a community based management regime in the Andean mountain ecosystems intended to regenerate and conserve its cultural and biological diversity (Sarmiento et al., 2005).

To put these guidelines into practice, ANDES has designed a participatory approach based on the concept of "Indigenous Biocultural Heritage" and on the recovery of Quechua customary-law[14]. Participatory methodological principles were used in the development of community-to-community and farmer-to-farmer learning networks based on the Quechua principle of *Ayni* (reciprocity). The facilitators of these networks are the "Barefoot Technicians", local villagers who are elected by their own communities and whose principal role is to link ANDES with their villages. Besides being effective language and cultural translators, these technicians hold the following responsibilities: participate in agriculture projects, research and evaluation exercises undertaken with ANDES; encourage community-wide political participation in local assemblies; train other individuals in traditional knowledge both within the park and via exchanging experiences with other communities inside and outside the park.

The concept of Indigenous Biocultural Heritage Area, by its turn, relies on the following definition:

> *A community-led and rights-based approach to conservation which protects and enhances local livelihoods and biocultural diversity using knowledge, traditions and philosophies of indigenous peoples related to the holistic and adaptative management of tradittional agricultural landscapes (Philips, 2002, p.12)*

Based on the concept of Biocultural Heritage, the following definition for indigenous knowledge protection was adopted for the Park commuinities: "full recognition and protection of rights of indigenous peoples and local communities to own and control their biocultural heritage, including to conserve it for livelihood security, and to restitution of heritage taken from them (Philips, op.cit.)". The Potato Park is the first and most advanced "Indigenous Biocultural Heritage Area" project of ANDES. In their "portfolio", there are other four similar projects for community conservation parks, with some particularl differences,in different stages of implementation: the Vilcanota Spiritual Park[15]; the Wetland of Wacarpay; the Barter Market Park of Lares and; the Andean Camel Park.

Research on customary law in the Potato Park is focused on how these principles could apply to benefit-sharing. For example, what kind of norms exist in relation to the redistribution of wealth? When resources are stolen by outsiders, how do communities deal this and the return of stolen goods? ANDES technicians identifies key issues to be examined, and these are discussed with the barefoot technicians who in turn "translate" them into issues and questions to the communities "study groups".

Study groups comprising community members (a minimum of three families, preferably families

14 Traditional common rule or practice that has become an intrinsic part of the accepted conduct in a community and is treated as a legal requirement.

15 To know more about this projects visit: www.andes.org.pe or www.sacredland.org/world_sites_pages/Vilcanota.html (for the Vilcanota Spiritual Park).

that live nearby) are micro spaces of analysis and debate which aim to propose solutions to local issues. Discussions are facilitated by the barefoot technicians, who use tape recorded stories to describe a situation, which is then debated. Meetings are planned to take advantage of the existing social norms. They meet in the evenings, respecting the peasants' routine: they work the fields during the day, and evenings are reserved for conversing with neighbours and friends on a variety of themes. They meet approximately once a week, for two hours, occasionally meeting with other groups or even with all study groups. ANDES researchers do not take part in the study groups - they only participate as observers in some of the meetings, and watch video recordings of others. In 2000, the first such study group began to meet to discuss Park governance and in 2001, the first economic study group was formed to manage the repatriation of native potatoes project.

The area of aproximately 15.000 hectares, includes more than 400 varieties of potatoes and also holds the existence of archaeological pre-Inca and Inca sites nearby. This area has not been affected (or has been affected very modestly) by market forces, and thus, traditional livelihoods have not been strongly altered over the years. Traditional Quechua practices, as the use of ancestral farming and agriculture technologies and the widespread use of traditional knowledge for the conservation of crops and medicinal plants are quite alive and active.

The Potato Park communities were under feudal farming systems until the 1970s when new legislation[16] enabled them to become land owners rather than labourers. Their lands have been essentially agricultural in character since the Inca times. This landscape is a recognized microcenter of origin for potatoes, with over 2.300 native cultivars being grown in the past (Asociación ANDES, 2003). However, during the years, Peruvian farmers have lost some of their traditional potato varieties for various reasons (climate changes, virus infections), including government policies to push ahead with commercial production (specially of the white potato) and discard traditional “old-fashioned” growing methods. Currently, about 600 varieties of native potatoes grow in the Park, most of them unique to this habitat.

Over the years, although native potato varieties were always regarded as useless for commercial cultivation, a large part of these crops has been stored in the form of gene bank collections (also known as “germplasm banks”), in international funded agricultural research centers, mainly for food security reasons. To combat pests and diseases, increase yields, and sustain production on marginal lands, today’s agricultural systems need a continuous supply of new varieties, what requires access to an entire gene pool.

The most important gene bank collections of the world’s key food and forage crops are located in the CGIAR – Consultative Group in International Agrigulture Research, an alliance of fifteen international agricultural research centers mostly located in developing countries. The CGIAR arm in Peru, the International Potato Center (known by its spanish acronym, CIP – *Centro Internacional de la Papa*), alongside with ANDES and the six Quechua villages that integrate the Potato Park, is the other protagonist of an original “Native Potato Repatriation Agreement”, signed in December 2004.

CIP's mission is to “seek to reduce poverty and achieve food security on a sustained basis in developing countries through scientific research and related activities on potato, sweetpotato, other root and tuber crops, and on the improved management of natural resources in the Andes and other mountain areas” (CIP, 2006). Its headquarters are located in La Molina, a district of Lima, Peru’s capital, but it also has experimental stations in the high Andes (Huancayo) and on the eastern area o Peru (San Ramón), taking advantage of Peru’s varied geography and climate. The Center has another Andean experiment station in Quito, Ecuador, and a worldwide network of regional offices

16 The Agrarian Reform of 1969 (Law 17.716), headed by the miltary - however, left-wing - government of General Velasco.

and collaborators that include an international team of scientists from 25 countries, supported by nationally recruited staff.

In the late 1970s, CIP was mostly funded by five donors. Today, the Center's budget is underwritten by more than 40 donors[17] and, as a member of CGIAR, CIP receives its principal funding from the 58 governments, private foundations and international and regional organizations that constitute this network. Founded in 1971, CGIAR is an informal organization providing oversight to a system of international research centers, a mechanism for collectively funding those centers, and a forum to discuss and affirm overall research-policy objectives. Its mission, according to its own definition, is: "to mobilize science to benefit the poor through scientific research and research-related activities in the fields of agriculture, forestry, fisheries, policy, and environment" (Alston et al., 2006).

The institutional beggining of the CGIAR alliance was largely supported by two private foundations, Ford and Rockfeller, and is closely related to the advent of the so called "Green Revolution". This term was coined in the 1960s and generally refers to a strategy of agriculture-led development, driven by research-induced technical change. This movement started in a concerted fashion some years before, after World War II, and fastly turned into a critical element in aid and economic-development policy. At the time that the USA was enjoying massive increases in agricultural productivity tied to advances in agronomy, crop breeding and agrochemicals, the thought was that, by bringing these new technological approaches to the Third World, especially "modern crop breeding," the hungry nations of the South would be able to imitate America's gains in agricultural productivity and thus end hunger and poverty[18].

Beginning in the mid-1940s and accelerating through the 1950s, the Ford and Rockefeller foundations pioneered a series of bilateral, commodity-oriented cooperative research efforts that linked U.S. scientists and institutions with developing-countries agricultural research centers. The first such venture was a cooperative program of the Mexican government and the Rockefeller Foundation, established in 1943 to conduct wheat research, which later evolved to become the International Maize and Wheat Improvement Center (CIMMYT). Another notable example was the rice research program at Los Baños, in the Philippines, that led the Rockefeller Foundation, in partnership with the Ford Foundation, to establish the International Rice Research Institute (IRRI)

17 In 2005 CIP has received contributions from the following organizations (CIP, 2006): Australian Centre for International Agricultural Research (ACIAR); Canadian International Development Agency (CIDA); Common Fund for Commodities (CFC); Conservation, Food and Health Foundation, Inc.; Danish International Development Agency (DANIDA); Department for International Development (DFID), UK ; European Commission (EC); Food and Agriculture Organization of the United Nations (FAO); Generation Challenge Program; Global Environmental Facility (GEF); Gordon and Betty Moore Foundation; Government of Austria; Government of Belgium; Government of Brazil; Government of China; Government of Germany (BMZ/GTZ); Government of India; Government of Italy; Government of Luxembourg; Government of Mexico; Government of Netherlands; Government of Norway; Government of Peru; Government of Spain; Government of the Republic of Korea; Harvest Plus; Inter-American Institute for Cooperation on Agriculture (IICA); International Bank for Reconstruction and Development (The World Bank Group); International Development Research Centre (IDRC); International Fund for Agricultural Development (IFAD); New Zealand Agency for International Development (NZAID); Natural Resources Institute (NRI), UK; Organización Española de Cooperación Internacional (CESAL); Fund for International Development/Organization of Petroleum Exporting Countries (OPEC Fund); Plant Research International; The Field Museum of Natural History; The McKnight Foundation; The Rockefeller Foundation; Swedish International Development Cooperation Agency (SIDA); Swiss Agency for Development and Cooperation (SDC); Swiss Centre for International Agriculture (ZIL); Syngenta Foundation for Sustainable Agriculture; Unión Mundial para la Naturaleza; United States Agency for International Development (USAID); United States Department of Agriculture (USDA); Universidad Politécnica de Madrid (UPM).

18 Some analists also claim that the Green Revolution had a major geopolitical significance during Cold War times: to undercut the appeal of radical social movement without having the address the more thorny issues of inequality in economic and political power at local, national and global levels. In the words of economist Keith Griffin (apud Alston et al., 2006): "the purpose of the Green Revolution was precisely to circumvent the need for institutional change. Technical progress was to be regarded as an alternative to land reforms and institutional transformation—the Green Revolution was to substitute for the Red".

in 1960. Closely following these developments came the establishment of the International Institute of Tropical Agriculture (IITA) at Ibadan, Nigeria, in 1967, and the *Centro Internacional de Agricultura Tropical* (CIAT) in Cali, Colombia, in 1968. These four centers would become the primary basis for the constitution of CGIAR (Alston et al., 2006; Spielman et al., 2007).

Since its foundation, CGIAR has added more 11 agricultural research institutions to its network. In addition, there are several institutions that work in close collaboration with CGIAR members, although they are not part of the alliance, themselves[19] . While the CGIAR secretariat – headquarted in Washington, at the World Bank – sets the general goals and provides funding, each center is administratively autonomous and is governed by a board of trustees.

The CGIAR alliance is now considered the most influential agricultural research body in the South, and thus, affects food and agricultural development policies for resource-poor farmers worldwide. The form and focus of CGIAR funding have changed markedly since the 1990s, however. A rising share of the available funds is now earmarked for specific projects by donors (often with implicit or explicit requirements for tie-ins with donor-country institutions or scientists). As a result, the network has also broadened its research horizons, moving away from its traditional focus on basic food crops to include environmental, indigenous and gender issues and other commodities, such as forest products and fish.

But although donor support has decreased in the last years, it is still the organization through which most donor support for international agricultural research is channeled, with an annual budgget currently estimated around 340 million dollars (Ortiz et al., 2008). Together, formal CGIAR centers manage approximately 600.000 agricultural seed samples and support about 8.500 scientists and technicians around the world.

The CGIAR centers were originally conceived as generating widely applicable technology, which with some adaptation by national agricultural research institutes could be extended to farmers and massively adopted. This conceptualization has been described as the “central source model of technological innovation” (Thiele et al., 2001). CGIAR centers had marked early success with the central source model when they developed high yielding varieties of wheat and rice, widely adopted in much of Asia .

In more marginal and ecologically varied conditions, however, the model was less successful. Participatory Research (PR), by involving farmers early in the process of technological innovation, challenged the assumptions underpinning the central source model. During the 1980s, when a flexible approach to research, known as “farmer-back-to-farmer”, was developed, the International Potato Center became famous for participatory research.

It is perhaps surprising that during the 1980s CIP acquired world renown as a center for PR since it was not an usual methodology for CGIAR. According to Thiele et al. (op.cit), this was directly associated with the work of two former CIP social scientists, Robert Rhoades and Robert Booth, and the model they developed together (Rhoades and Booth, 1982). But subsequently there was a

19 The other centers are: CIFOR (Center for International Forestry Research), in Indonesia; ICARDA (International Center for Agricultural Research in the Dry Areas), in the Syrian Arab Republic; The World Fish Center (former ICLARM - International Center for Living Aquatic Resources Management), in the Malaysia; The World Agroforestry Center (former ICRAF - International Center for Research in Agroforestry), in Kenya; ICRISAT (International Crops Research Institute for the Semi-Arid Tropics), in India; IFPRI (International Food Policy Research Institute), in USA; ILRI (International Livestock Research Institute), in Kenya; Biodiversity International (former IPGRI - International Plant Genetic Resources Institute), in Italy; IWMI (International Water Management Institute), in Sri Lanka, and WARDA (West African Rice Development Association), in Benin. Some unaffiliated centers (as the International Centre of Insect Physiology and Ecology and the International Fertilizer Development Center) have also engaged in related research.

widespread perception that CIP had ceased to be a leader in agricultural PR. Even in the 1980s, implementation of participatory research was actually limited and grew with little clear encouragement from CGIAR. Decentralization of CIP's social scientists in the early 1990s led to the fragmentation of participatory research and, in the absence of any clear champion, it seemed that it might wither away (Ortiz et al., op.cit).

In the last five years, progressive enlargement of the CGIAR research agenda (in order to atract donor support), and the recruitment of international staff who have been exposed to other currents of participatory research has led to a relative revival of PR interest at CIP. The repatriation agreement signed with the Andean communities of the Potato Park has certainly something to do with this revival, but its implementation was only made possible because of a significant change in the international ABS regulation for food crop genebanks, an opportunity that would be immediatley capitalized by ANDES, representing the Potato Park communities.

In 2004, after three years of of controversy and intense debate, the CGIAR crops genebanks came under the auspices of the FAO International Treaty on Plant Genetic Resources for Food and Agriculture, ensuring that plant breeders, farmers and researchers would be able to access these plant genetic resources under standard conditions and share in the benefits arising from their use. This treaty, which was approved by the FAO Conference in November 2001, only entered into force on 29 June 2004, when FAO signed agreements with international agricultural research centers, including CGIAR, holding collections of around more than 600.000 samples of the world’s most important plant genetic resources for food and agriculture.

Only six months after the inclusion of CGIAR potato genebanks in the multilateral system established by FAO’s Treaty, ANDES was already coming to terms with CIP's Biodiversity Division, where the potato germplasm bank is held. It is the world’s largest bank of potato germplasm, including 1.500 samples of about 100 wild species collected in eight Latin American countries. Like all the collections maintained and managed under the terms of the FAO International Treaty, CIP's potato genebank is available to plant breeders worldwide upon request, since June 2004.

Previous research collaborating relationship of Alejandro Argumedo, an agronomist himself, with some veteran CIP researchers, were essential to the fast pace of the negotiation process.The juridical expertise was mostly provided by IIED – International Institute for Environment and Development, an international policy research institute and non governmental body with its head office in England, and a strong sponsor, as well as collaborative partner organisation, of ANDES.

In December 2004, the six farming communities of the Potato Park, represented by ANDES, signed the agreement with the International Potato Centre (CIP) to protect both the genetic diversity of the region's potato varieties, and the rights of indigenous people to control access to these local genetic resources. Basically, under the scheme, CIP scientists commited to repatriate potato varieties from CIP's collection of specimens to local farmers and to conserve them in the Potato Park. The agreement, which was the first of its kind signed with indigenous communities, aims to ensure that the traditional knowledge, ancestral technologies and control of genetic resources related to the Park's varieties is kept with local people. As well as providing food for the six communities that jointly own the land, the idea is that the Park also serve as a “living library” of potato genetic diversity (Asociación ANDES, Potato Park, CIP, 2004).

Despite this, the agreement was not drawn up for local communities to secure intellectual property rights over indigenous potato strains. According to Argumedo, patent is a concept that is alien to the Quechua, who freely exchange knowledge between villages, so the idea behind the park was to create a reserve where indigenous Quechua crops could be protected from commercialization by

outsiders: “the intention is to ensure that the genetic material does not become subject to intellectual property rights in any form and that the diversity of Peruvian potato varieties is maintained”[20]. In this way, the agreement do not hamper collaborative research between CIP and scientists elsewhere, provided that the research is not used for exploitative or commercial purposes (No IPRs for Andean Potato Genes, 2005).

The discourse against patents and biopirates, by the way, is highly disseminated among the Park's communities. It certainly has something to do with NGOs anti-biopiracy activism, including ANDES campaigns, but it is also a consequence of previous experience. Although maca is not cultivated within the Park's boundaries, the previously mentioned maca patent's case (Section 2) has upset the park's inhabitants and contributed, in some way, to popularize the concept of biopiracy among the Quechua farmers. Potential biopirates are generally associated with foreigner institutions, specially private corporations.

There is also a general feeling of skepticism in relation to the Peruvian government iniatives in order to prevent biopiracy and protect traditional knowledge. ANDES refers to governments policies as “market oriented” and criticizes the lack of participation of indigenous knowledge holders at the national biodiversity boards. On the other hand, there is a fear that collaboration with governmental agencies might contribute to the misappropriation of their knowledge. In this way, Alejandro Argumedo claims the distinction between “Traditional Knowledge” and “Indigenous Knowledge”: “traditional knowledge is sometimes used by governments to suggest it is national knowledge, while indigenous knowledge is used by indigenous peoples to denote their knowledge (Argumedo & Pimbert, 2005, p.9)”.

In fact, the Quechuas don't totally trust that even the CIP's gene banks are completely secure. They still express some ill will toward CIP, stemming from the maca dispute. When a coalition of maca producers met in Lima in 2002, they pleaded with CIP, whose gene banks include 31 varieties of maca, to challenge the American patent. As that challenge never materialized, the Quechuas got disappointed. There are also allegations (never proved) that smuggled seeds of Yacon, were stolen from CIP[21].

To create the Potato Park, Argumedo's group struck a deal with CIP: close to 450 varieties of tubers indigenous to the central Andes would be removed from the CIP's gene bank, and the seeds were sent to the Park. The Quechua thus became the sole guardians of these genetic resources, able to decide who can have access to them. If a researcher wants to examine one of these tubers, he must obtain permission directly from the Park's council.

Until june 2007, 246 virus-free varieties of native potatoes had been reintroduced to the Park. According to CIP, these are already in full production and yielding 30 percent more than potatoes that have not been cleaned of viruses. CIP has agreed to pay for the cost of reintroducing the first 300 strains for the Potato Park farmers as an acknowledgment of the benefits the organisation has derived from the indigenous knowledge of the region. Samples of these potatoes, many of which hadn't been cultivated in the Andean region for years, are now growing again at the Potato Park, and the Quechuas are eager to educate visitors as to each potato's unique properties. There is the “daughter-in-law” potato, the bitter flesh of which was used by the Quechuas to test whether a soon-to-be-bride is prone to crying; the “thief of hearts” potato, a purplish tuber renowned for its outward beauty; the “Puma's Claw” potato; and a potato so sweet that it's only served at weddings and birthdays.

---

20 Interview with Alejandro Argumedo, Cusco, June 20th 2007.

21 Yacon, a native Andean crop relative of the sunflower, intrigues food researchers because its sugars are not metabolized by the human body. Several Yacon derivatives have been patented in Japan, and international critics have alleged that some of the Japanese research was conducted on seeds smuggled out of Peru (Koerner, 2005).

There is also a plot of land within the park where the Quechuas raise medicinal plants to produce traditional remedies, which are kept under lock and key at the Park's pharmacy. An “Interpretation Centre” has been built which houses facilities for packaging medicinal plants, sold for local needs, with part of the profits fed back to a communal Potato Park fund . The centre, wich is now the Potato Park main building, also houses displays of native potatoes, and a landscape model of the Park, and the intention is to use it as a visitor centre/museum for agro-ecological tourism, together with hiking trails, taking advantage of the beautiful natural and historical sites of the region. There is already a fully equiped building to house a restaurant - The Papamanka - where the visitors can sample a diverse selection of dishes based on native potatoes (which now only opens in special ocasions, such as celebrations or to receive large groups of visitors) as well as a Handcraft Shop of local artifacts, specially fabrics. Plans are also underway to market traditional organic potatoes as “nutraceuticals”, i.e., a kind of food supposed to provide medical or health benefits.

Although knowledge privatization and patents are alleged to be alien concepts for them, the communities of the Potato Park are investing in their own mechanisms to protect traditional knowledge against misappropriation, in a scheme that Tobin calls “rights first, access later” (2001). In this way, they declare:

> *Although IPR protection of traditional knowledge is largely considered an inappropriate mechanism to strengthen and empower indigenous peoples, certain IPR tools which respect the communally shared and owned nature of traditional knowledge and property may be strategically used to serve indigenous people's interests* (Argumedo & Pimbert, 2005, p.10).

The repatriation agreement signed with CIP is part of these strategy and there are also plans of creating geographical landmarks to assure collective rights and access to markets. Besides the deal with CIP, the most advanced protection project, until now, is a computerised database register of traditional knowledge that has been set up to promote indigenous knowledge for community use, but also as a tool for protection against biopiracy. The idea is to provide *prior art* registers that can be used to demonstrate pre-existing knowledge that may invalidate a patent, in case of biopiracy. Sacred and religious knowledge are not stored in the register

The software interface reflects the binary *Kipus* system traditionally used by Quechua peoples to record information using knots on strings. In this way, it provides a visual tool for the *campesino* communities who are largely illiterate. The system is built upon open source software and “copy-left” technology. Funding for the project has been provided by IIED, alongside with grants from the Italian private foundation (with a bank origin), Fondazione Cariplo.

To support the database, groups of *campesino* women have been trained by ANDES technicians in the use of video cameras to film and document traditional practices and application of knowledge in the area of agricultural practices, medicinal practices and maintenance of cultural activities within communities. The database project, which is running since 2003, was largely inspired by the work of two organizations from India: the Decan Development Society (DDS), a gender issued grassroots organization, who developed the concept and, the Community Media Trust (CMT), a women's media collective from the province of Andhra Pradesh, who first implemented it. In 2002, a group of women from the CMT visited Cusco as part of the farmer's exchange segment of IIED's Sustaining Local Food Systems Project. Their visited provided an opportunity for the Potato Park communities to learn how to register indigenous knowledge according to the DDS's model.

Despite the fact that the Quechuas of the Potato Park are not totally aligned with governmental strategies, these videos are in practice a registry which can be seen as an implementation of Law 27811, as one of the mechanisms to document and maintain traditional knowledge, except for a detail. Since they control the cameras and the computers upon which the video is digitally stored,

the Quechuas have no qualms about logging every little detail of their knowledge. There is no anxiety that a non-Quechuan government official in Lima will release the information, or that it will end up in a public database monitored by pharmaceutical researchers. However, it has not yet been totally defined nor agreed how these registries will be used and under what conditions non-community members may access the information.

Although it is not exactly part of this paper's scope to analyze the conflicts and the hibrid forms built between "modern" techno-science artifacts and "traditional" forms of knowledge, it is worthwhile to take a look at the Quechua's arguments to justify the adoption of up-to-date technological artifacts in order to protect indigenous knowledge. The use of media records and computer technology is arguably far removed from traditional indigenous practices of managing information. Nevertheless, they say:

> *While the presence of computers in indigenous communities may seem like a threat to tradition, if they are used in a way that is respectful of customary law and practices, then they may instead present an important opportunity for indigenous culture and values to adapt and to benefit form this technology. The Indigenous Biocultural Heritage Regiter in the Potato Park hopes to capitalise on this opportunity* (Asociación ANDES, 2003, p.8).

The protection of indigenous knowledge and crops is, in fact, essential for the Park's future goal of establishing certificates of origin, copyrights and collective trademarks for Andean potatoes. Currently, most of the Park's Potato production is for self-consumption, although a small part is exchanged for other products through a bartering system that does not involve money. But CIP and ANDES are working together on a project to identify market niches that could add value to native potatoes and so generate new income for the local people from the Park. This has already been a course of action for CIP in other projects.

According to CIP, the immense variety of Peruvian native potatoes represents a comparative advantage that the country should be developing, since it is impossible to compete internationally with the white potato, a very cheap commodity. To fulfill this purpose, it is essential create incentives to promote the use and consumption of native and local crops, which would be particularly important for *campesinos* and native communities, as these have so far been excluded from the credit systems and thus options to strengthen their productive systems.

One of the strategies has been the dissemination of the native potato in the Peruvian gastronomic circuit. Through the project Innovation and Competitiveness for the Peruvian Potato (INCOPA in Spanish), CIP has established a partnership with the main gastronomy schools of Lima[22] to promote research projects among the students aimed at creating innovative dishes (the so called "Novoandina Cuisine"), which could help to put native potatoes in the international gourmet market. These efforts began in 2003, and have already resulted in products derived from native potatoes targeted for very specific markets (tourists, gourmet consumers etc.). One of those products, "T'ikapapa" – specially selected and packed native potatoes from Huancavelica, Apurímac, Junín and Cajamarca potato producers – was granted on the World Food Day, October

22 Although gastronomy has always been deeply rooted in Limeños idiosyncrasy, the last few years have seen a huge leap in Lima's dining scene. One possible explanation for the boom is international recognition. The Economist magazine, for example, reported in 2004 that Peru could lay claim to one of the world's dozen or so great cuisines. And Patrick Martin, academic director of Le Cordon Blue, said that one of the reasons for having a branch of the school in Lima was the excellent quality of local cuisine (De Pattre, 2007). Two other aspects converge to give Peruvian cuisine. The first, off course, is Peru's huge biodiversity: potatoes and hot peppers from the Andes, fish and seafood from the Pacific Ocean, mangoes and limes from the coastal valleys, bananas and manioc from the Amazon jungle. Second, Peruvian cuisine is, like most of the Latin American cuisines, the result of a strong cultural fusion. Ever since the first blending between Inca and Spanish traditions, local cooks have incorporated the flavours and techniques of the many immigrants that disembarked in Peru's ports, such as Italian and French, and, most notably, Chinese and Japanese.

16, by Food and Agriculture Organization of the United Nations (FAO) for the successful promotion of small rural production (CIP, 2006).

Besides it's objective value, this prize has also a very symbolic significance for the campesinos. According to the Peruvian anthropologist Gerardo Damonte23, it is, to say the least, very ironical that native potatoes are now gaining the status of "gourmandises", specially at the international domain. It was quite different fifteen or ten years ago, when native crops were simply dumped by the upper middle-classes from Lima and generally targeted as "sauvage food".

In the last two years, the Potato Park has gained some international reputation as a potentially successful model of local conservation of agrobiodiversity combined with indigenous community engagement. In a commentary, the international science weekly New Scientist wrote, "Deals like this one prevent multinational seed companies patenting traditional varieties of crops to exploit their native genes. This practice has sometimes forced communities to pay fees for growing seeds they originally bred." (apud Kothari, 2006). For Muller (2006) and Pimbert (2006), this is an example of how indigenous communities can organise themselves to achieve a more balanced (if any) relation with strong and sometimes very perverse market influences. Simirlarly, for Sarmiento et al. (2005), the Potato Park project illustrates the role of indigenous and *campesino* communities in sustaining landscapes, while providing for their livelihoods, in an innovative approach that is likely to have greater success in conserving the local biodiversity than those that rely solely on conventional conservation approaches.

The project also raised commentaries about possible changes in CGIAR's orientation, an organization historically associated with main-stream actors (the World Bank, Ford and Rockfeller Foundation) and a techno-based/highly productive/market-oriented model of agriculture. Rachel Wynberg, an activist of *Biowatch*, an NGO from South Africa that monitors the commercialisation of biological resources, declared: "this agreement signals a new way of working for CGIAR centres - one which advances the rights of local farming communities, over those of corporations, and which places the ownership of genetic resources firmly with the local custodians of these resources" (apud Robson, 2007).

ANDES argues that the project could serve as a possible emulation model for other arrangements worlwide and that similar agreements might be made for returning the rights of other major crops to indigenous peoples. Indeed, although formal relations with the Peruvian governmental bodies are not so strong, some foreign governmental bodies from biodiversity rich countries have turned its eyes to the Potato Park project as a promising reference for building national capacity in ABS and TK protection models and *in situ* conservation policies. That is the case of the Center of Chinese Agriculture Policy (CCAP) which, in 2006, organised a workshop and field-trip to the Park, in order to gain some insight and experience from the Peru case.

Part of the Potato Park's successful approach comes from a pragmatical strategy self-defined as "reversing the access and benefit-sharing paradigm" (Sanjai, 2005; Shetty,2005). It essentially consists in reviewing key terms and standards in international policies in order to identify gaps and opportunities for indigenous knowledge protection and to capitalize this opportunities into their favor. This strategy requires intense lobbying, networking and partcipation in key international fora, like FAO's and CBD's meetings and even in WIPO's events:

> *It was also noted that WIPO may not be an appropriate forum for developing standards for TK protection since it is an IPR promoting body, which means that TK protection is being addressed in what is essentially an IPR framework. In addition, its work is difficult to influence given the limited participation in the forum. However, WIPO is still an important process for the project to inform*

23 Interview wih Gerardo Damonte, Lima, June 14th 2007.

> *given that international standards have an influence on national policies* (Argumedo & Pimbert, 2005, p.6).

According to ANDES, both the CBD and FAO Treaty on Plant Genetic Resources for Food and Agriculture are based on access and benefit-sharing frameworks and material transfer agreements developed from the perspective of granting access to external users to the resources of southern countries and local communities. But this framework should be turned on its head, to facilitate access by local communities to genetic resources held in gene banks etc.

For example, in order to repatriate traditional potato varieties collected by the International Potato Centre from the Potato Park during the 1970s, Andes argued that traditional knowledge and natural resources cannot be separated, hence repatriation is needed to protect indigenous knowledge. The CBD Article 17.2 on repatriation or return of information of importance to indigenous and local communities and relevant for conservation was also used. As already mentioned, the FAO Treaty was also very useful in gaining the repatriation agreement with CIP as it recognises farmers' rights to traditional knowledge and benefit-sharing.

4. CONCLUSIONS

Currently, there are some, but not many, benefit-sharing projects in Peru. This paper has described one of them: the reapatriation agreement of a native potato germplasm bank between the Quechuas communities of the Potato Park and CIP, a research institute that integrates the CGIAR alliance.

The Potato Park case share some common characteristics with previous benefit-sharing arrangements that took place in Peru. For example, that is a project where an indigenous organization established a partnership with a foreigner institution and, as in previous arrangements of this type, the terms of the agreement were directly negotiated between the partners, without any mediation from the Nation State and under strong influence of a non-governmental organization. Last, but not least, benefit-sharing related to biodiversity resources was a central entitlement, at least, rethoricaly.

Despite the predictable characteristics, the project also presents some unique attributes. Previous Peruvian benefit-sharing agreements related to biological resources associated to indigenous knowledge (usually bioprospection projcets) were typical buyer-supplyers commercial relationships celebrated with a contract, while the repatriation agreement between CIP and the Quechua communities of the Potato Park is part of a *in situ* conservation project. While bioprospection agreements usually involved indigenous organizations and private corporations, this case involves indigenous organizations and a research institute with no profit intentions. Besides, the research institute, although related to a huge international network, has a solid Peruvian branch with a vast majority of Peruvian researchers.

As a consequence, analysing this case can provide some useful insights from the point of view of this paper - the impacts of benefit-sharing agreements on indigenous rights recognition and sustainable development . I*n situ* Conservation projects, like the Potato Park experience, have been recently acknowledged as a potential model for biodiversity protection associated to the recognition of local communities knowledge, practices and land's property. Generally, these projects are embedded in the rethoric of reclaiming property rights over territory and "food sovereignty" and are aimed at benefits for farming communities as an ultimate goal. The reaction against "the abusive exercising of intellectual property rights by multinational companies to privatise indigenous-bred germplasm" (Asociación ANDES, 2003) is normally part of this rethoric, too.

The originality of such projects is that, although intellectual property entitlements are criticized as

an abusive form of knowledge privatization, these communities, usually organized by an NGO, are developing defensive strategies based on very similar tools for knowledge protection: restricted knowledge databases; collective trademarks; denominations of origin etc. As it became clear from the Potato Park analysis, if IPR mechanisms are "strategically used" to respect communaly shared and owned traditional knowledge and property, then they are considered legimate. Negotiation in international meetings and articulation with key-actors is also part of this plot.

For Perrault (apud Coombe, 2005, p. 51), the appropriation of such forms of knowledge protection doesn't mean an abandonment of tradition, but that these communities are negotiating their place within "modernity" by calling for environmentally sustainable forms of development based upon culturally specific values and practices. They do so from a "fully modern subject position - interacting with state agencies, national NGOs, and transnational networks of development, human rights, and environmental organizations" (Coombe, 2005).

The Potato Park experience seems to be a promising experience for biodiversity conservation, however, there are some suscetible points that willl require further attention, as the project evolves. First of all, it takes some time to evaluate the nature and impacts of the (very recent) ongoing relationship between ANDES and the CGIAR. Because of the obvious differences in their origin, interests and nature, these are two institutios that would be hardly involved in a partnership, ten or fifteen years ago.

As it was already mentioned, the repatriation agreement was celebrated as a possible change in CGIAR's direction, however, while CIP was coming to terms with ANDES to sign the agreement, at a meeting in Mexico, in November 2004, environmental activists protested that CGIAR was building too many links with large biotechnology corporations that promote genetically modified crops. CGIAR denied the allegations, saying that although they do investigate transgenic methods of crop development, only three per cent of the total amount spent each year on improving seeds is related to such research. The organisation was also criticised for not making a public statement about the contamination of native varieties of Mexican corn with genetic modified strains coming from the United States and Canada (Robson, 2007).

The absence of the Nation State is also a delicate issue in this arrangement. The Quechuas have little faith in the "bureaucrats of Lima". They seem to prefer to protect their knowledge and their crops with their own measures. The CBD grants nations sovereignty to biodiversity, while, in Article 8j, it encourages the "recognition" and "protection" of indigenous contributions to biodiversity. According to Hayden (2003), these are very different idioms of entitlement, and the CBD has in many senses fueled longstanding struggles between indigenous peoples and nation-states over control to disputed territories and resources. This is certainly the case in Latin America, where nation-state and indigenous sovereignties historically clash in particularly and sometimes, violent, ways. So, this re-nationalization of biodiversity, since the CBD publication, has prompted a new focus on "public" resources over and above "community" resources.

The corollary for the absence of the Nation State has been the increasing presence and influence of NGOs in these projects, as grant sources, "spokes-person" or advocates. Greene (2004, p.222) has already pointed the complexities of NGOs participation in indigenous claims:

> *Coming to terms with the influence of NGOs in this process is an important step, since relatively little has been written about them from an anthropological point of view. While critics see the more powerful international NGOs as part of a neoliberal project to perpetuate a false consciousness of marginalized peoples' 'empowerment' (see Petras 1997; Hardt and Negri; 2000: 36), others argue that NGOs represent the primary force of democratization, social service, and development in the age of the shrinking state (see Meyer 1999, Bebbington et al. 1993, Clark 1990). In the case of indigenous peoples, external NGO allies and indigenous institutions, often of the NGO sort*

> *themselves, can and do provide important leverage against private and state interests. But as bureaucratic institutions with their own political and social agendas they also often operate at considerable geographic, cultural, and linguistic distance from local constituencies, which can result in a tendency to oversimplify and romanticize indigenous realities (...) The tendency of NGOs to distort claims of indigenous representation in protest of bioprospecting are matched by the tendency of researchers, agents of public institutions, and pharmaceutical corporations to do the same in their own support. Both sides seek out and attempt to legitimate indigenous allies in accordance with their institutional, political, or economic goals.*

Finally, besides administrating the benefit-sharing agreement with CIP, the major challenge for ANDES and the Potato Park communities in a near future might be the creation and regulation of benefit-sharing commitments among themselves, specially if the plans for the creation of a "Potato Park" collective trademark and the implementation of the Ecotourism project succeed. Discussions are arising from similar projects worldwide as to how the benefits should be shared among and between local communities: what is really at stake in collectivization? should benefits derived along the research and development chain accrue to communities as well? Should benefit sharing be exclusive rights for those involved in particular agreements? Or should the benefits be shared as an open source among all farmers who need access to them, and their allies in the efforts to save the remaining crop genetic heritage? Not only the Potato Park, but Peru is currently at a crossroads in this regard.

REFERENCES

Alston, J.M.; Dehmer, S.; Pardey, P. G.; International Initiatives in Agricultural R&D: The Changing Fortunes of the CGIAR, in: Pardey, P. G.; Alston, J.M.; Piggott, R.R. (eds.) *Agricultural R&D in the developing world: Too little, too late?* Washington, DC: International Food Policy Research Institute, 2006, pp. 313-349.

Argumedo, A. ; Pimbert, M. Traditional Resource Rights and Indigenous People in the Andes, ANDES/IIED, Nov. 2005, available at: www.iied.org

Associación ANDES, *Asociación de Comunidades del Parque de la Papa*, 2003, available at: www.iied.org

Asociación Andes, Potato Park, International Potato Centre. *AGREEMENT ON THE REPATRIATION, RESTORATION AND MONITORING OF AGROBIODIVERSITY OF NATIVE POTATOES AND ASSOCIATED COMMUNITY KNOWLEDGE SYSTEMS between The Association of Communities in the Potato Park, represented by the Association for Nature and Sustainable Development (ANDES, in its Spanish acronym) and The International Potato Centre (CIP, in its Spanish acronym)*, La Molina, Peru, December 2005.

Brack, A. *Perú: Diez Mil Años de Domesticación*. Lima: GTZ - PDRS, UNDP, 2005, 154p.

Centro Internacional de la Papa (CIP), *Strengthening our Assets, Enhancing our Impact: the Strategic Plan for Research of the International Potato Center, 2006-2016*, La Molina: CIP, 2006, 87p., available at: www.cipotato.org

Coombe, R. J. The Recognition of Indigenous Peoples' and Community Knowledge in International Law, *St. Thomas Law Review* ,14 (2): 275-285, 2001.

Coombe, R.J. Legal Claims to Culture in and Against the Market: Neoliberalism and the Global Proliferation of Meaningful Difference, *Law, Culture and the Humanities*, 2005, 1: 35 -52.

Coombe, R. J. “Works in Progress: Indigenous Knowledge, Biological Diversity and Intellectual Property in a Neoliberal Era”, in: Perry, R. W. and Maurer, W. (eds.) *Globalization Under Construction: Governmentaliy, Law and Identiy*, Minneapolis: University of Minnesota Press, 2003, pp. 273- 313.

Comisión Nacional de Biopiratería. *Análisis de Potenciales Casos de Biopiratería en el Perú*. Documento de Investigación. Iniciativa para la Prevención de la Biopiratería. Año I, No. 3., 2005, available at: www.biopirateria.org

Correa, C. Considerations on the Standard Material Transfer Agreement Under the FAO Treaty on Plant Genetic Resources for Food and Agriculture, *The Journal of World Intellectual Property*, Vol. 9, No. 2, 2006, pp. 137–165.

Correa, C. *Alcances Jurídicos de las Exigencias de Divulgación de Origen en el Sistema de Patentes y Derechos de Obtentor*. Documento de Investigación. Iniciativa para la Prevención de la Biopiratería. Año I, No.2. , 2005, available at: www.biopirateria.org

De Jonge, B.; Korthals, M. Vicissitudes of Benefit Sharing of Crop Genetic Resources: Downstream and Upstream, *Developing World Bioethics*, Volume 6, Number 3, 2006 , pp 144–157.

De la Cruz, R., Guinand, L. E., Lopez R., Szauer, M.T. (eds.,). *Elementos para la Protección Sui Generis de los Conocimientos Tradicionales, Colectivos e Integrales desde la Perspectiva Indígena*. Comunidad Andina, Corporación Andina de Fomento, Ministerio de Asuntos Extranjeros de Francia. Caracas, Venezuela, 2005.

De Pattre, C. *Lima's Gastronomic Boom*, Urban Expressionist Views and Marketing Graffiti (blog), October 2007, available at: www.urbanexpressionist.com

Ferro, P., Muller, M.R. (eds.) *¿Cómo prevenir la biopiratería en el Perú? Reflexiones y Propuestas*, Lima : Sociedad Peruana de Derecho ambiental, 2005, 176 p.

Greene, S. “Indigenous People Incorporated? Culture as Politics, Culture as Property in Pharmaceutical Bioprospecting,” *Current Anthropology*, 45: 211-237, 2004.

Hayden, C. Benefit-sharing: experiments in governance**,** *SSRC Workshop: Intellectual Property, Markets, and Cultural Flows*, New York, NY, October 24-25, 2003.

Hayden, C. Taking as Giving: Bioscience, Exchange, and the Politics of Benefit-sharing**,** *Social Studies of Science*, 2007, No. 37: 729-758.

Heywood, V.H.; Duloo, M.E. *In situ* Conservation of Wild Plant Species: a Critical Global Review of Good Practices, *IPGRI Technical Bulletin*, No.11, FAO/IPGRI-CGIAR, 2007, p.61, avilable at: www.fao.org

Koerner, B. Viagra Natural, *Legal Affairs: the Magazine at the Intersection of Law and Life*, 2005, 7p., available at: www.legalaffairs.org

Kothari, A. Community conserved areas: towards ecological and livelihood security, *PARKS: The international journal for protected area managers*, v.16, No.1, 2006, p. 3-13, available at: www.iucn.org

Muller, M. R. *¿Cómo prevenir y enfrentar la biopiratería? Una aproximación desde Latinoamérica – Documento de Investigación*, Lima: Iniciativa para la Prevención de la Biopiratería/SPDA, Año 1, No. 1, Enero 2005, availble at : www.spda.org.pe

Muller, M. R. *The Farmers' Rights Project: Farmers'Rights in Peru – A Case Study*, Lima: SPDA/The Fridtjof Nansen Institute, April 2006, 109p.

No IPRs for Andean Potato Genes, *Bridges*, Year 9, No.1, January 2005, available at: www.ictsd.org

Ortiz, O.; Frias, G.; Ho R.; Cisneros, H.; Nelson, R.; Castillo R.; Orrego, R.; Pradel, W.; Alcazar, J.; Bazán, M.; Organizational learning through participatory research: CIP and CARE in Peru, *Agriculture and Human Values*, January 2008 (on line), available at: www.springerlink.com

Peterson, K. Benefit Sharing for All?: Bioprospecting NGOs, Intellectual Property Rights, New Governmentalities, *PoLAR: Political and Legal Anthropology Review*, May 2001, Vol. 24, No. 1: pp. 78-91.

Phillips, A. *Management Guidelines for IUCN Category V Protected Areas: Protected Landscapes/Seascapes*. IUCN: Gland, Switzerland, 2002, available at www.iucn.org

Pimbert, M. Transforming Knowledge and Ways of Knowing for Food Sovereignty and Bio-Cultural Diversity, *Conference on Endogenous Development and Bio-Cultural Diversity: the interplay of worldviews, globalisation and locality*, Geneva, 3-5 October 2006, available at: www.iied.org

Rhoades, R.; Booth, R. Farmer back to farmer: a model for generating acceptable agricultural technology. *Agricultural Administration* ,11:127-137, 1982.

Robson, D. *Exploring Components and Elements of Sui Generis Systems for Plant Variety Protection and Traditional Knowledge in Asia*, ICTSD Programme on IPRs and Sustainable Development, March 2007, 64p. available at: www.ictsd.org

Sanjai, S. The Potato Capital of the World Offers Up New Recipe, *IPS News*, January 2005, available at: www.ipsnews.net

Sarmiento, F.O.; Rodríguez,G.; Argumedo, A. Cultural landscapes of the Andes: indigenous and *colono* culture, traditional knowledge and ethno-ecological heritage. In: Brown, J.; Mitchell, N.; Beresford, M. (eds.), *The Protected Landscape Approach: Linking Nature, Culture and Community.* Gland, Switzerland and Cambridge, U.K.: IUCN, 2005, pp. 147–162.

Shetty, P. "Peruvian 'potato park' to protect indigenous rights", SciDev.Net, London, January 2005, available at: www.scidev.net

Sousa Santos, B.; Meneses, M.P., Nunes, J. A. Para Ampliar o Cânone da Ciência: a Diversidade Epistemológica do Mundo, in: *Semear outras soluções - Os caminhos da biodiversidade e dos conhecimentos rivais*, Sousa Santos, B. (org.), Porto: Afrontamento, 2004, pp. 18-65.

Spielman, D.; Hartwich, F.; von Grebmer, K.., *Sharing Science, Building Bridges, and Enhancing Impact: Public - Private Partnerships in the CGIAR*, IFPRI Discussion Paper, No. 708, June 2007, 84p., avialbale at: www.cgiar.org

Thiele, G.; van de Fliert, E.; Campilan, D.; What happened to participatory research at the

International Potato Center? *Agriculture and Human Values*, v. 18, No. 4, December 2001, pp. 429-446.

Tobin, B. Redefining Perspectives in the Search for Protection of Traditional Knowledge: A Case Study from Peru, *RECIEL* 10 (1), 2001, pp. 47-64.

Tobin, B.; Swiderska, K. *En Busca de un Lenguage Común: Participción Indígena en el Desarrollo de un Régime Sui Generis para la Protección del Conocimiento Tradicional en Perú*, Participación en la Política de Acceso a Recursos Genéticos - Estudio de Caso no. 2, IIED/SPDA, Diciembre 2001, 78p., available at: www.iied.org